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Fifty Years of the Ultracentrifuge

Proceedings of the Conference, Bethesda, Maryland, February 24-26, 1975

edited by **MARC S. LEWIS** and **GEORGE H. WEISS,** National Institutes of Health, Bethesda, Maryland

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1976. viii+286 pages. Price: US $45.95/Dfl. 115.00. ISBN 0-7204-0511-4

An article entitled "The Ultracentrifuge, A New Instrument for the Determination of Size and Distribution of Size of Particles in Amicroscopic Colloids" was published by The Svedberg and Herman Rinde in the December 13, 1924 issue of the Journal of the American Chemical Society. Thus was described the basic instrument and techniques which J.D. Watson in "The Molecular Biology of the Gene" characterized as "Perhaps the most striking contribution of physical chemistry to the study of biological macromolecules...". The readers of this book should not need amplification of that statement.

In spite of the fact that this conference celebrated a fiftieth anniversary, ultracentrifugation is far from being a static field of scientific endeavour. For this reason, with the exception of Professor Kai Pedersen's inaugural paper reviewing the development of the ultracentrifuge in Svedberg's laboratory, the conference focussed on some representative current topics in ultracentrifugation where the major portion of the work has not been published.

CONTRIBUTORS: E.T. Adams Jr., D.W. Appleby, W.A. Barnett, D. Blair, J.P. Breillatt, J. Cluzel, C. Cohen, H. Cohen, R.H. Conrad, J.J. Correia, R.H. Crepeau, S.J. Edelstein, H. Eisenberg, M.T. Gehatia, H.B. Halsall, J.E. Hearst, J.B. Ifft, M.L. Johnson, C.M. Jones, G. Kegeles, R. Kikas, G.D. Knott, M.S. Lewis, P. Male, M. Moignier, K.O. Pedersen, T.G. Pretlow II, T.P. Pretlow, S.C. Rall, E.G. Richards, D.E. Roark, J. Roche, D.L. Rockholt, C.R. Royce, W.K. Sartory, V.P. Saxena, V.N. Schumaker, C. Soulié, S.P. Spragg, K.E. van Holde, P.J. Wan, G.H. Weiss, D.R. Wiff, J.K. Wilcox, R.C. Williams Jr., D.A. Yphantis, B.H. Zimm and C.B. Zimm.

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Each year, the "Les Houches Summer School in Theoretical Physics" is devoted to a particular area of physics in which recent progress has taken place. The courses are organized on a pedagogical and systematic basis and present original work, often constituting some unique reviews and presenting a complete and detailed survey of the field.
In 1975, North-Holland Publishing Company took over the publication of the proceedings of these symposia, commencing with the XXVIth Session. Forthcoming volumes in the series will cover: application of lasers to atomic and molecular physics, methods in field theory, particle physics, and nuclear physics.

Session XXVI (July - August 1974):

Atomic and Molecular Physics and the Interstellar Matter

edited by ROGER BALIAN, PIERRE ENCRENAZ and JAMES LEQUEUX

1975 xxiv + 634 pages. Price: US $ 63.95/Dfl. 160.00.
ISBN 0-7204-0328-6

This Session was devoted to the physics of interstellar matter with special emphasis on atomic and molecular processes. The eight-week duration of the conference made it possible to examine in depth a broad range of topics. The lectures contained in the volume provide detailed descriptions of both the basic physical and chemical processes occurring in the interstellar gas and dust, which, taken together, provide a thorough and up-to-date account of the present status of our observational and theoretical knowledge of this medium.

CONTRIBUTORS: G.B. Field, D. Flower, P. Goldreich, S. Green, E.M. Greenberg, F.D. Kahn, R. McCarroll, H. Nussbaumer, A.A. Penzias, H. Reeves and W.D. Watson.

June Institute (1975):

Structural Analysis of Collision Amplitudes

edited by ROGER BALIAN and DANIEL IAGOLNITZER

1976 xx + 638 pages. Price: US $ 59.95/Dfl. 150.00.
ISBN 0-7204-0506-8

These Proceedings present basic theoretical developments of relativistic scattering theory. Multiparticle processes have become of increasing experimental importance during the past decade and this book provides, for the first time, a coherent presentation of basic developments in the study of the analytic structure of multiparticle collision amplitudes. It also contains hitherto unpublished detailed accounts by some of the world's leading specialists of basic developments in the axiomatic foundations of relativistic quantum theory, together with the most recent results and applications in two related important areas of contemporary research, namely the Reggeon calculus and the dual resonance models.

CONTRIBUTORS: D. Atkinson, J. Bros, K. Cahill, C.E. De Tar, H. Epstein, V. Glaser, D. Iagolnitzer, M. Lassalle, G. Mahoux, S. Mandelstam, H.P. Stapp, R. Stora and A.R. White.

Session XXVII (June - July 1975):

Frontiers in Laser Spectroscopy

edited by ROGER BALIAN, SERGE HAROCHE and SYLVAIN LIBERMAN

1977 about 944 pages. Published in 2 volumes.
Price: US $ 111.95/Dfl. 280.00. ISBN 0-7204-0457-6

The program of this session reflected the dramatic impact of the development of lasers in modern spectroscopy. The book gives a general presentation of the theoretical background necessary for the understanding of light-matter interaction problems, and reviews the various new methods in which lasers are now being used to improve our knowledge of atoms, molecules and even nuclei. The ten courses are grouped into five parts dealing first with fundamental problems and proceeding to specific applications to spectroscopy.

CONTRIBUTORS: R.G. Brewer, B. Cagnac, C. Cohen-Tannoudji, M.S. Feld, S. Haroche, A. Javan, P.L. Kelley, J.-C. Lehmann, V.S. Letokhov, S. Libermann, J.-P. Monchalin, S. Mukamel, T. Oka, M. Sargent III, G.W. Series, S. Stenholm, P.E. Toschek and H. Walther.

Session XXVIII (July - September 1975):

Methods in Field Theory

edited by ROGER BALIAN and JEAN ZINN-JUSTIN

1976 xviii + 387 pages. Price: US $ 39.95/Dfl. 100.00.
ISBN 0-7204-0433-9

The XXVIIIth Session was devoted to the developments and applications of quantum field theory elaborated in the last few years. This book presents the essence of the courses, the texts retaining both their elementary and thorough character. The first lectures give a solid background in field theory, followed by the development of the theory of quantization and renormalization of gauge fields. The application of the renormalization group to high-energy lepton-hadron interactions is demonstrated and finally, the applications of the field theoretical methods in other contexts are treated. Thus the volume constitutes a self-contained account of the modern methods in field theory which is both consistent and pedagogical. It will play the role of a handbook which will be of value for years to come in helping clarify some of the concepts and set the basis for future developments in the field.

CONTRIBUTORS: E. Brézin, C.G. Callan Jr., S. Coleman, L.D. Faddeev, D.J. Gross, B.W. Lee, T.D. Lee, G. 't Hooft, M.J.G. Veltman and K.G. Wilson.

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   For a paper in a contributed volume: A. Carrington, in: Magnetic resonance and radiofrequency spectroscopy, ed. P. Averbuch (North-Holland, Amsterdam, 1968) p. 23.

   For an unpublished paper: G.J. Lycett, Ph.D. Thesis, University of Birmingham, England (1970).
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